

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO.

WASTE DISCHARGE REQUIREMENTS  
FOR  
BERRYESSA GARBAGE SERVICE, INC.  
STEELE CANYON LANDFILL  
CLASS III LANDFILL  
POST-CLOSURE MAINTENANCE  
AND CORRECTIVE ACTION  
NAPA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. Berryessa Garbage Service, Inc. (hereafter referred to as “Discharger”) owns and operates the Steele Canyon Landfill, an inactive Class III landfill on Steele Canyon Road approximately one mile northeast of Moskowite’s Corner on State Highway 128, as shown in Attachment “A”, which is incorporated herein and made part of this Order by reference. The landfill is on a 20-acre site in the southwest ¼ of Section 15, T7N, R3W, MDB&M, corresponding to Assessor Parcel Number 032-140-046.
2. The 10-acre facility includes two unlined landfill units, a borrow area, a storm water collection pond, drainage facilities, access roads, and a bin storage area, as shown in Attachment "B", incorporated herein and made part of this Order by reference. The landfill units include a 1.2-acre older fill area on the west side of the site (Landfill 1), and a 7.4-acre landfill unit in the central part of the site (Landfill 2). Both landfills are unlined and neither has a leachate collection and recovery system.
3. The facility operated from the early 1960s until 1993, accepting primarily household and commercial wastes from residences and resorts along the western shore of Lake Berryessa. The facility stopped accepting wastes on 1 March 1993 but was not closed. Since 1993, refuse from the area has been disposed of at the Potrero Hills Landfill in Solano County.
4. Previous WDRs Order No. 96-130, issued prior to initiation of landfill closure, no longer adequately describes the facility.
5. Effective 18 July 1997, the water quality regulations for Class II and Class III disposal facilities formerly contained in Chapter 15, Title 23, California Code of Regulations (CCR), and the solid waste regulations formerly in Title 14, CCR, were consolidated into Chapters 1 through 7, Subdivision 1, Division 2, Title 27, CCR (Title 27 or 27 CCR). These WDRs implement Title 27 regulations and prescribe updated requirements for performing post-closure maintenance and corrective action monitoring of the landfill.

6. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulations (Title 40, Code of Federal Regulations, Parts 257 and 258, "federal municipal solid waste (MSW) regulations" or "Subtitle D") that apply, in California, to dischargers who own or operate Class II or Class III landfill units at which MSW is discharged. The majority of the federal MSW regulations became effective on the "Federal Deadline", which was 9 October 1993. The landfill is subject to all federal Subtitle D regulations because it accepted MSW and does not qualify for any available exemptions. The landfill does not qualify for the limited exemption applicable to facilities that ceased accepting wastes prior to 9 October 1993 per 40 CFR 258.1(d) because it did not close within the following six-month period as required for the exemption. The landfill also does not qualify for the small landfill (i.e., less than 20 tons per day) exemption per 40 CFR 258.1(f)(1) because there is evidence of groundwater impact from the unit.

#### **WASTES AND UNIT CLASSIFICATION**

7. The landfill accepted solid wastes defined as "inert" and "nonhazardous solid waste" under 27 CCR Sections 20230 and 20220, respectively. The landfill was not authorized to accept hazardous or liquid wastes and a 1990-91 Solid Waste Assessment Test (SWAT) investigation found no evidence of hazardous waste impacts at the site.
8. The facility accepted approximately 4.7 tons (17 cubic yards) per day of waste, consisting of about 50 percent household waste, 45 percent commercial waste, and 5 percent demolition wastes. No special wastes were accepted at the landfill. It is estimated that about 85,000 cubic yards (23,375 tons) of wastes were discharged to the facility. The maximum thickness of waste is estimated to be about 40 feet (in the middle deck area of the main fill between 935 to 975 feet above MSL).
9. Both landfills (LFs-1 and 2) are existing, reclassified Class III waste management units under 27 CCR Section 20080(d), since they operated prior to 27 November 1984. LF-1 is an inactive unit under Section 20080(g) because it ceased accepting wastes prior to 27 November 1984.

#### **SITE DESCRIPTION**

10. The landfill was constructed in a ravine in low rolling hills along the eastern edge of the Capell Valley, about one half mile west of Wragg Ridge. The average site elevation is about 965 feet above mean sea level (MSL).
11. Land within 1,000 feet of the site area is generally used for farming, vineyards and cattle grazing. Natural vegetation in the area consists primarily of annual grasses and scattered oak trees.
12. Residences and businesses in the landfill vicinity are supplied by domestic wells. It is estimated that there are approximately 24 supply wells within a one mile radius of the site based on information in the files, including 19 domestic wells, 5 agricultural supply wells and one industrial well. No supply wells are known to exist within 1,000 feet down gradient of the landfill, but there are 2 private domestic wells about 900 feet north of the landfill. The total depth of these wells ranges from about 60 to 440 feet, and averages about 160 feet.

Well yields range from about 1.5 to 25 gallons per minute (gpm) for the domestic wells and from about 10 to 60 gpm for the agricultural wells.

13. The site is not within a 100-year floodplain.

#### **SURFACE AND STORM WATER**

14. The site area is drained by an unnamed creek (in the adjacent ravine to the southwest), which flows to Oak Moss Creek, tributary to Capell Creek, and thence Lake Berryessa.
15. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
16. The beneficial uses of Lake Berryessa and its tributaries are municipal and domestic supply; agricultural supply; hydropower generation (potential use); water contact and non-contact water recreation; cold freshwater habitat; warm freshwater habitat; spawning, reproduction and/or early development (warm water only); and wildlife habitat.
17. The 100-year, 24-hour precipitation event is 5.8 inches as determined from Rainfall Depth Duration Frequency data provided by the State Department of Water Resources for the Markeley Cove Station. The data indicates that the 2-year, 24-hour precipitation event at the station is about 2.6 inches.

#### **GEOLOGY**

18. The regional geology consists of a faulted ridge-valley system that includes the Capell Valley, an alluvial trough, to the west; Wragg Ridge, a faulted block of marine sedimentary rock, to the east; and rolling hills in between. The geology includes metamorphic, sedimentary and igneous rocks. The soil in the area is generally Bressa-Dibble Complex, an upland range soil formed from weathered sandstone and shale.
19. Boring logs from the site show up to 9 feet of soil overlying bedrock, typically consisting of clayey sand (SC) or silt (ML) under the Unified Soil Classification System. The underlying bedrock is a complex mixture (or "mélange") of Jurassic Age metasedimentary deposits of the Franciscan formation, including sandstone, shale, greenstone, chert, and conglomerates. The formation does not have geologic structures such as strike, dip and bedding planes, but is weathered and fractured. Adjacent to the site to the west are Late Jurassic to Early Cretaceous Age alluvial sedimentary deposits of the Great Valley Sequence (i.e., mudstones, sandstones and conglomerates). Outcrops of ultramafic igneous rocks such as serpentine are also common in the area.
20. There are no known Holocene faults within 1000 feet of the facility. The closest active fault is the Hunting Creek/Berryessa Fault within 1 mile of the site. Additional faults include the Concorde-Green Valley fault about 6 miles southwest of the site and West Napa fault, about 10 miles southwest of the site. The maximum probable earthquake (MPE) and peak bedrock acceleration values for the site have not yet been determined but will be included in the slope stability report (described in Finding 31) required under Provision G.10 of this Order.

### GROUNDWATER

21. The beneficial uses of the ground water are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
22. The depth to groundwater at the site ranges from about 5 to 15 feet below ground surface (bgs) depending on surface location. Groundwater elevations range from about 1,000 feet above MSL on the upgradient perimeter of LF-2 to about 890 feet above MSL on the downgradient perimeter of LF-2, plus or minus 3 feet of seasonal variation. The groundwater gradient averages about 0.1 ft/ft to the southwest. The minimum separation between the base of the landfill and historical high groundwater is estimated to be 5 feet or less, based on information the 1990 SWAT proposal prepared by McLaren.
23. Four groundwater monitoring wells, MWs-6 through 9, were installed at the site in 1991 as part of the 1990-91 SWAT investigation (December 1991 *Berryessa Garbage Service, Inc., Solid Waste Water Quality Assessment Test Report*, prepared by James C. Hanson). MW- 6 was installed upgradient of LF-1, MW-7 upgradient of LF-2, MW-8 downgradient of both units, and MW-9 downgradient of LF-2. MW-8 monitors groundwater flows from both units while MW-9 monitors only LF-2. Five previously installed shallow monitoring wells (MWs- 1 and 5) were abandoned due to lack of a seal.
24. Historical groundwater monitoring data shows a release from the landfill consisting of general minerals, as follows:

<i>Constituent</i>	<i>Concentration Range, mg/L<sup>1</sup></i>		
	Upgradient	Downgradient	
	MW-7	MW-8	MW-9
Specific Conductance, $\mu\text{mhos}/\text{cm}^2$	405 – 956	946 - 2,690	747 – 3,600
Total Dissolved Solids	540 - 880	1,100 - 1,300	780 - 1,700
Chloride	13 - 35	510 - 860	30 – 190
Sulfate	< 2	3 - 12	50 - 450
Hardness as $\text{CaCO}_3$	89 - 520	190 - 380	300 - 650

1. Based on monitoring data from 1999 to 2005, except where noted.

2. Based on monitoring data from 1990 to 2005.

25. Time series plots do not show any clear rising or falling trends, except for chloride and sulfate in MW-9, which have recently been detected closer to background concentrations.
26. Monitoring and Reporting Program (MRP) Order No. \_\_\_\_ requires that the Discharger perform corrective action monitoring to monitor the release and the progress of corrective action.
27. Leachate seeps have been historically detected along the landfill deck slopes and toe areas. During the active period the Discharger operated an unlined pond at the landfill toe to collect leachate seepage. The ½-acre-foot pond was constructed by damming the toe area of the

ravine with an earthen berm. The amount of leachate collected in the pond was not measured but is described as being small. Pond monitoring data collected since 1990 shows specific conductance in concentrations ranging from 125 to 5,600  $\mu\text{mhos/cm}$ , indicating that the liquid was likely a mixture of leachate, storm water runoff and possibly groundwater. Generally lower concentrations of specific conductance, ranging from 125 to 925  $\mu\text{mhos/cm}$ , have been detected in the pond liquid since 2002. The occurrence of leachate seeps has also been reduced to negligible levels. These improvements appear to be attributable to construction of the landfill cover and drainage controls, which

27. have reduced leachate generation and increased storm water runoff to the pond. As a result of the improvement in quality of liquid collected in the pond, the pond is now considered primarily a storm water collection pond, but is still required to be monitored for leachate constituents as part of corrective action monitoring (see Finding 32 and Section E.3 of the MRP).

#### **LANDFILL CLOSURE**

28. Previous WDRs required the Discharger to submit a Final Closure Plan (FCP) to comply with Chapter 15 (now Title 27) regulations, and a corrective action plan to address the groundwater impacts and historically-detected leachate seeps. In 1996, after completing a site investigation (see Information Sheet), the Discharger submitted a work plan intended as both a FCP and a corrective action plan (July 1996 *Workplan for Preliminary Closure Construction Activities*, prepared by Emcon). The work plan proposed phased closure of the landfill over a seven-year period, including a prescriptive cover design, as follows:

- a. Foundation Layer – 2 feet of compacted soil
- b. Low Hydraulic Conductivity (LHC) Layer – 1 foot of compacted clay ( $k \leq 1 \times 10^{-6}$  cm/sec)
- c. Erosion Resistant Layer – 1 foot of clean vegetative cover soil
- d. Vegetative Cover – native grass mix

Board staff approved the work plan on 1 July 1996, indicating that it would be construed as a FCP upon approval of the construction plans for the first phase, and as an amended FCP thereafter as each phase is proposed and approved.

29. The Discharger subsequently implemented closure of the landfill under the amended FCP as follows:

<u>Phase</u>	<u>Area</u>	<u>Acres</u>	<u>Construction Year</u>
1. Crest		1.0	1996
2. Crest slopes		0.8	2000
3. Middle deck slopes		1.2	2001
4. Middle deck		1.8	2002
5. Lower deck (except northern tip)		2.4	2003
6. Old fill area (north half)		0.8	2004
7. Old fill area (south half), and Lower deck - northern tip		0.5 <u>0.1</u>	2005 2005
Total Area:		8.6	

Board staff approved certification reports submitted by the Discharger after construction of the each phase, including the certification report for the final closure phase (Phase 7), submitted on 3 April 2006. The final phase (Phase 7) certification report was approved subject to submission and approval of an acceptable slope stability report, as required under Provision G.10 of this Order.

#### Slopes

30. The LF-2 crest was constructed with a 3 percent minimum slope. Cover elevations at LF-2 range from about 900 feet MSL along the toe to about 1,013 feet MSL at the crest, based on the first post-closure aerial topographic survey conducted in February 2006. The steepest final cover slopes, about 4:1 horizontal-to-vertical, were constructed along the toe of LF-2.
31. A Section 21750(f)(5) technical report demonstrating the stability of the landfill cover slopes was required for this facility since, pursuant to Section 21090(a)(6), closure Phases 2 through 7 were constructed after July 18, 1997, and no slope stability report was previously submitted or approved for the landfill. The Discharger has not submitted this report. Provision G.10 therefore requires that the Discharger submit the slope stability report as an addendum to the Final Closure Plan/Post-Closure Maintenance Plan (FCP/PCMP).

#### Drainage

32. Precipitation and drainage controls for the landfill include diversionary and perimeter ditches around both units, overside drains, culverts, and a storm water collection pond at the foot of LF-2 (former leachate collection pond), as shown in Attachment B. All drainage facilities have sufficient capacity to accommodate a 24-hour, 100-year storm event, except for the storm water pond, which during the wet season, occasionally overflows to the perimeter ditch along Steele Canyon Road. Discharge Specification B.3 requires that the Discharger monitor storm water runoff from the site, including overflows from the pond, in accordance with MRP No. \_\_\_\_ and the State Water Resources Control Board General Industrial Storm Water Permit, Water Quality Order No. 97-03-DWQ. The landfill drainage facilities are described further in the Information Sheet attached to this Order.

Landfill Gas

33. There are not currently any landfill gas (LFG) monitoring wells at the site and concentrations of methane in the landfill gas have not yet been determined. Reporting Requirement F.4 of these WDRs requires that the Discharger provide a semiannual assessment of the effectiveness of corrective action, including an evaluation as to whether landfill gas may be a source of groundwater impacts at the site and whether LFG controls may be necessary as a corrective action measure.

**COST ESTIMATES AND FINANCIAL ASSURANCES**

34. The Discharger has not yet submitted a Post-Closure Maintenance Plan (PCMP), including cost estimates, as required under 27 CCR Section 21769(c). Provision G.9 of these WDRs requires that the Discharger submit a PCMP.
35. The amended FCP included cost estimates of \$524,000 in 2005 dollars (\$459,200 in 1998 dollars) for the cost of landfill closure. The Discharger provided \$90,000 in 1998 dollars (\$101,065 in 2005 dollars) in the form of a Letter of Credit toward this estimate but was not able to fund the full amount as required under 27 CCR Section 22205(b). The CIWMB did not approve the FCP for this reason and the Discharger proceeded with phased closure using available monies collected each year from garbage collection fees (see attached Information Sheet). No funds were released or drawn under the Letter of Credit. The ultimate cost of landfill closure (i.e., Phases 1 through 7) was approximately \$550,000 in 2005 dollars.
36. The Discharger is required to demonstrate financial assurances for post-closure maintenance to the California Integrated Waste Management Board (CIWMB) pursuant to 27 CCR Section 22210(b), since the landfill operated after January 1, 1988. The Discharger has not provided these financial assurances, nor provided a PCMP with cost estimates as noted in Finding 34. Provision G.9 of these WDRs requires that the Discharger submit a PCMP, including updated post closure cost estimates for maintenance and monitoring. Provision G.11 requires that the Discharger provide post closure financial assurances to the CIWMB in an amount approved by the CIWMB in consultation with the Regional Board per 27 CCR Section 20950(f).
37. The Discharger is required to demonstrate financial assurances for corrective action to the CIWMB pursuant to Section 22220(b), since the landfill was operated after July 1, 1991. The Discharger has not provided these financial assurances. Provision G.9 of these WDRs requires that the Discharger include cost estimates for further corrective action in the PCMP, while Provision G.13 requires that the Discharger provide corrective action financial assurances to the CIWMB in an amount approved by the CIWMB in coordination with the Regional Board per 27 CCR Section 22221(a).

**CEQA AND OTHER CONSIDERATIONS**

38. The action to revise the WDRs is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR Section 15301 for existing facilities.

39. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports." The monitoring and reporting program required by this Order (MRP No. \_\_\_\_, attached) is necessary to assure compliance with these WDRs. The Discharger owns and operates the facility that discharges the waste subject to this Order.
40. On 17 June 1993, the State Water Resources Control Board adopted Resolution No. 93-62 implementing a State Policy for the construction, monitoring, and operation of MSW landfills that is consistent with the federal MSW regulations promulgated under Title 40, Code of Federal Regulations, Part 258 (Subtitle D). Title 27 incorporates *State Water Resources Control Board (SWRCB) Resolution No. 93-62*.
41. This order implements:
  - a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
  - b. Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;
  - c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and
  - d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

#### **PROCEDURAL REQUIREMENTS**

42. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
43. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
44. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
45. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws



and regulations applicable to the filing of a petition are available on the Internet at [http://www.waterboards.ca.gov/water\\_laws/index.html](http://www.waterboards.ca.gov/water_laws/index.html) and will be provided on request.

**IT IS HEREBY ORDERED**, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 96-130 is rescinded, and that the Berryessa Garbage Service, Inc., its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

**A. DISCHARGE PROHIBITIONS**

1. The discharge of new or additional waste to the landfills at this facility is prohibited.
2. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
3. The discharge of treated or untreated wastewater or groundwater to any surface water or any surface water drainage course is prohibited without a National Pollutant Discharge Elimination System (NPDES) permit authorizing the discharge.
4. The landfill shall not cause pollution or a nuisance, as defined by the California Water Code, Section 13050, and shall not cause degradation of any water supply.
5. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

**B. DISCHARGE SPECIFICATIONS**

1. The discharge shall remain within the designated disposal area at all times.
2. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.
3. Storm water runoff from the facility shall be monitored in accordance with MRP No. \_\_\_\_ and the State Water Resources Control Board General Industrial Storm Water Permit, Water Quality Order No. 97-03-DWQ.
4. A minimum separation of five feet shall be maintained between wastes or leachate and the highest anticipated elevation of underlying groundwater per 27 CCR Section 20240(c).

### C. POST-CLOSURE SPECIFICATIONS

1. Construction documents for non-routine landfill cover repairs, precipitation and drainage control system repairs, and corrective action measures shall be submitted in accordance with the following schedule:

<u>Item/Activity</u>		
a.	Submit design plans, specifications, and/or CQA plan, as applicable	At least 2 months prior to starting construction
b.	Submit as-built plans, CQA report and/or certification report, as applicable:	Within 2 months after completion of each construction

All construction documents referenced above shall be certified by a California registered civil engineer or a certified engineering geologist in accordance with the April 2000 SPRR and applicable Title 27 sections (e.g., 27 CCR Sections 20323, 20324, and 21090(h)).

2. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be maintained to prevent such erosion.
3. All final cover slopes shall be capable of withstanding a maximum probable earthquake.
4. The final cover shall be graded and maintained to prevent ponding, promote lateral runoff, and prevent soil erosion due to high run-off velocities.
5. The erosion-resistant layer shall be maintained with native or other vegetation capable of providing effective erosion resistance. The vegetation shall not have a rooting depth greater than the erosion-resistant layer thickness.
6. Precipitation and drainage control systems shall be designed, constructed, operated and maintained to convey peak flows from a 100-year, 24-hour storm event.
7. The closed landfills shall be maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, and washout.
8. The Discharger shall conduct an aerial survey of the site every five years for the purpose of updating the landfill topographic map to track differential settlement.
9. Annually, prior to the anticipated rainy season but no later than 31 October, any necessary erosion control measures shall be implemented and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent storm water flows from:
  - a. Contacting or percolating through wastes,

- b. Causing erosion or inundation of the landfill cover or other areas of the site, or
  - c. Causing sedimentation and clogging of the storm drains.
10. The post-closure maintenance period shall continue until the Regional Board finds that remaining waste in the landfill will not threaten water quality. Such finding by the Regional Board shall release the discharger only from the need to comply with the SWRCB-promulgated portions of Title 27 and not necessarily from the requirements of other state agencies (including the agents of such agencies) such as the CIMWB and Local Enforcement Agency.

#### **D. FACILITY SPECIFICATIONS**

- 1. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
- 2. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the WDRs. All storm water controls, including drainage facilities, shall be maintained so that they function effectively during precipitation events.
- 3. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.
- 4. All wells within 500 feet of the waste management units shall have sanitary seals that meet the requirements of the Napa County Environmental Management Department or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Regional Board and to the State Department of Water Resources.

#### **E. MONITORING SPECIFICATIONS**

- 1. The Discharger shall conduct groundwater and surface water monitoring, as specified in MRP No. \_\_\_\_\_. Groundwater monitoring shall include background monitoring and corrective action monitoring. Background monitoring shall be conducted for the purpose of establishing concentration limits as part of the Water Quality Protection Standard per 27 CCR Section 20400(a). Corrective action monitoring shall be conducted for the purpose of assessing the nature and extent of the release, designing corrective action measures, and for assessing the progress of corrective action (Section 20430(d)).
- 2. The Discharger shall provide the Regional Board a minimum of one-week notification prior to commencing any field activities related to the installation, non-routine repair, or abandonment of monitoring devices. The Discharger shall also provide the Regional Board with a sampling schedule at least 48 hours prior to initiation of each detection, evaluation, or corrective action monitoring event conducted pursuant to MRP No. \_\_\_\_\_.

3. The Discharger shall comply with the Water Quality Protection Standard as specified in MRP No. \_\_\_\_ and the SPRR.
4. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed concentration limits established in accordance with MRP No. \_\_\_\_\_. Reporting Requirement F.4 of these WDRs requires that the Discharger provide a semiannual assessment as to the progress of corrective action toward returning to compliance with this specification as part of the Water Quality Protection Standard.
5. The Discharger shall maintain and implement a Sample Collection and Analysis Plan that includes the following elements:
  - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
  - b. Sample preservation information and shipment procedures;
  - c. Sample analytical methods and procedures; Sample quality assurance/quality control (QA/QC) procedures; and
  - d. Chain of Custody control.
6. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken within a span not to exceed 30 days, unless a longer time period is approved, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.
7. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved sampling plan.
8. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval prior to use.
9. The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

10. "Trace" results - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
11. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
12. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
13. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
14. All QA/QC data shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

#### **MONITORING DATA ANALYSIS**

15. All monitoring data analysis methods shall be consistent with the performance standards specified in 27 CCR Section 20415(e)(9) and sampling standards specified in Section 20415(e)(12).
16. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to 27 CCR Section 20415(e)(7) that is used in the statistical method shall be the lowest concentration (or value) that can be reliably achieved within limits of precision and accuracy specified in the WDRs for

routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to Section 20415(e)(7), shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or down gradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

17. For inorganic monitoring parameters and COCs for which at least 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use the Tolerance Interval statistical method for background and corrective action monitoring, or an alternate statistical method approved by the Executive Officer in accordance with 27 CCR Section 20415(e)(8)(E), to establish concentration limits pursuant to Section 20400. The Discharger shall conclude that any analyte that exceeds its concentration limit provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release at that monitoring point. Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event. The statistical method shall take into account any seasonality in the groundwater quality data.
18. For inorganic monitoring parameters and COCs for which less than 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger for these constituents:
  - a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds its MDL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if the data contains an analyte that exceeds its PQL.

Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

19. For VOCs and other organic COCs (i.e., non-naturally occurring COCs) the Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger these constituents:
  - a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if either:

- 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
- 2) The data contains one analyte that equals or exceeds its PQL.

Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

#### Discrete Retest

20. If the above statistical or non-statistical trigger procedures used for groundwater monitoring data analysis provide a preliminary indication of a new release or a previously unconfirmed constituent of the existing release at a given monitoring point, the Discharger shall immediately notify the Regional Board by phone or e-mail and, within 30 days of such indication, shall collect *two* new (retest) samples from the monitoring point where the release is preliminarily indicated.
  - a. For any given retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those analytes detected in the original sample. As soon as the retest data are available, the Discharger shall apply the same tests [i.e., 17 for statistical constituents, 18.a or 19.a for non-statistical constituents], to separately analyze each of the two suites of retest data at the monitoring point where the release is preliminarily indicated.
  - b. If either (or both) of the retest samples trips the applicable trigger above (17, 18.a or 19.a), then the Discharger shall conclude that there is measurably significant evidence of a release at that monitoring point for the analyte(s) indicated in the validating retest sample(s) and shall:
    - 1) Immediately notify the Regional Board about the constituent verified to be present at the monitoring point, and follow up with written notification submitted by certified mail within seven days of validation; and
    - 2) Comply with 21, below.

Exceedances that the Discharger demonstrates (per 27 CCR Section 20420(k)(7)) are the result of sample corruption, laboratory interferences, error, natural variation in the groundwater or other cause not associated with a release from the unit shall not trigger notification of a tentative release, and shall not trigger a retest unless a retest is necessary to make the demonstration. Exceedances for any other constituents for which the Discharger fails to conduct a retest will be considered confirmed without retest. Exceedances for constituents that have been previously confirmed as part of the release at a given monitoring point, including regularly detected COCs and COCs that are sporadically detected (e.g., as a result of seasonal or lateral fluctuations in the plume), shall be considered confirmed without notification and retest.

21. If the Discharger determines that there is measurably significant evidence of a new release from the Unit at any monitoring point, the Discharger shall immediately

implement the requirements of Section XI, RESPONSE TO RELEASE, April 2000 SPRR.

22. The data analysis methods shall also include trend analysis using time series plots and an evaluation of the water chemistry by appropriate methods (e.g., Piper diagram, ion balance, stiff diagram etc) to monitor the effectiveness of corrective action measures in accordance with Section E.3.C of the MRP. The trigger requirement for performing trend analysis shall be at least 4 historical data points above the PQL.

#### **F. REPORTING REQUIREMENTS**

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. \_\_\_\_\_, and in the April 2000 SPRR.
2. The discharger shall mail a copy of each monitoring report and any other reports required by this Order to:

California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, CA 95670  
(or the current address if the office relocates)

3. All reports and transmittal letters shall be signed by persons identified below:
  - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
  - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
  - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
  - d. A duly authorized representative of a person designated in a, b or c above if;
    - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
    - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
    - 3) The written authorization is submitted to the Regional Board.

Any person signing a document under this Section shall make the following certification:



“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

4. The Discharger shall submit semiannual corrective action progress reports in accordance with MRP No. \_\_\_\_ and 27 CCR Section 20430. Each progress report shall address the following issues:
  - a. The source of the impact (e.g., leachate, waste constituents in landfill gas, inadequate groundwater separation)
  - b. The nature and extent of the release.
  - c. Whether the size of the plume and concentrations of constituents within have increased, decreased or have not changed.
  - d. The effectiveness of landfill closure as a corrective action.
  - e. The need for additional corrective action measures (e.g., landfill gas controls) and/or monitoring wells.

The reports shall include plans for the installation any additional monitoring wells necessary to define the extent of the release and/or monitor the progress of corrective action.

5. The Discharger shall notify the Regional Board in writing of any proposed change in ownership or responsibility for construction or operation of the landfill. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in the SPRR (Reporting Requirement 4) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Board.
6. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Board office by telephone as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within two weeks. The written notification shall state the

nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

7. The Discharger shall also notify the Regional Board of any proposed land use or closure plan changes. This notification shall be given 90 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.
8. The Discharger shall maintain a copy of this Order and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

## **G. PROVISIONS**

1. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 and 40 Code of Federal Regulations Part 258 (Subtitle D) that are not specifically referred to in this Order.
3. The Discharger shall comply with the Monitoring and Reporting Program No. \_\_\_\_, which is attached to and made part of this order. A violation of the MRP is a violation of these WDRs.
4. The Discharger shall comply with the April 2000 Standard Provisions and Reporting Requirements (SPRR), which are hereby incorporated into this Order. The SPRR contain important provisions and requirements with which the Discharger must comply. A violation of any of the SPRR is a violation of these WDRs.
5. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
6. The owners of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged wastes during the closure and post-closure maintenance period of the landfill and during subsequent use of the property for other purposes.
7. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.

8. If the Discharger or Regional Board determines that the corrective action program is not adequate (i.e., does not satisfy the provisions of Section 20430), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Regional Board of such determination, submit an amended report of waste discharge (RWD) to make appropriate changes to the program. The amended RWD shall include the following:
  - a. A discussion as to why existing corrective action measures have been ineffective or insufficient.
  - b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release
  - c. A discussion of corrective action needs and options.
  - d. Proposed additional corrective action measures, as necessary, for:
    - 1) Source control,
    - 2) Adequate separation from groundwater,
    - 3) Groundwater cleanup, and/or
    - 4) Landfill gas control
  - e. A plan to monitor the progress of corrective action measures consistent with the MRP
  - f. Cost estimates for implementing additional corrective action, including monitoring
  - g. An implementation schedule.
9. The Discharger shall, by **31 July 2006**, submit a Post-Closure Maintenance Plan (PCMP) that reflects current operations and requirements under these WDRs and MRP No. \_\_\_\_\_. The PCMP shall contain all information required under 27 CCR Section 21769(c), including, but not limited to, updated cost estimates for post-closure maintenance and monitoring. The updated PCMP shall be submitted to the Regional Board, the Local Enforcement Agency, and the CIWMB.
10. By **31 July 2006**, the Discharger shall, pursuant to 27 CCR Sections 21090(a)(6) and 21750(f)(5), submit a technical report demonstrating the stability of the landfill cover slopes. The report shall be submitted as an addendum to the FCP/PCMP, and the landfill shall not be considered closed until this report is submitted and approved.
11. The Discharger shall obtain and maintain assurances of financial responsibility for post-closure maintenance costs in the amount of the cost estimates in the updated post-closure maintenance plan, as approved. The Discharger shall submit a proposed financial assurance mechanism for closure and post-closure maintenance meeting the requirements of Chapter 6, Title 27 to the Financial Assurances Section of the CIWMB. If the CIWMB determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism for at least the amount of the approved cost estimate.
12. The Discharger shall establish cost estimates for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill, and submit these estimates for review and approval.

13. The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in an amount approved by the Regional Board per 27 CCR Section 22221(a). Upon approval of the cost estimate, the Discharger shall submit the financial assurance mechanism for the approved amount to the Financial Assurances Section of the CIWMB per Chapter 6, Title 27. If the CIWMB determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism for at least the amount of the approved cost estimate.
14. The Regional Board will review this Order periodically and will revise these requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on \_\_\_\_\_.

\_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer